

## INFORMATION TECHNOLOGY INFRASTRUCTURE AND CUSTOMER SERVICE DELIVERY

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**Abstract:** *The purpose of this study was to investigate the impact of compatibility and connectivity of Information Technology Infrastructure (ITI) on reliability and access of customer service delivery in the Nigeria commercial banks. The study selected 8 commercial banks out of the 20 commercial banks in Nigeria as to generalize her findings. The study conveniently selected 40 customers' from the eight banks, thereafter a total of 40 copies of the questionnaire that is 5copies per banks was randomly distributed to the 40 customers of the banks and the 40 questionnaire were fully attended to and retrieved. Simple percentages, tables were used to analyze the respondent demographics, while the Spearman's rank order correlation coefficient was used to analyze the four hypotheses; this was made easy with the use of statistical package for social sciences SPSS. The findings therefore revealed that compatibility and connectivity of ITI has strong and positive impact on reliability and access of customer service delivery. Therefore, the study has bridged knowledge by revealing that the two component of ITI used in this study impact on the two components of customer service delivery as used in this work. We, recommended that commercial banks should improve on their ITI compatibility and connectivity by training and retraining their IT personnel to be responsive to customer's complaints, also should overhaul their ITI facilities regularity in other words by improving their facilities, so as to deliver quality service and access to service.*

**Keywords:** Information Technology Infrastructure, Customer Service Delivery, Commercial Bank, Compatibility, Connectivity, Reliability and Access

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## INTRODUCTION

In Nigeria, contemporary firms are making significant investment in information technology infrastructure to build business strategies, improve profitability and provide extended services. The banking sector in Nigeria has in the last decade gone through a traumatic period of expectations and frustrations, expansion and contraction for survival. From the mid-1990s the sector recorded phenomenal growth in the number of banking institutions that were registered to begin Operation, also the number of licensed banks rose to 89 in 1998 (Ezeuduji, 2000). With the emergence of democracy in 1999, Nigeria emerged from economic sanctions and global isolation. For the banking sector, it brought about a new phase of sanitation, including organizational and ethical reforms and the recapitalization. In the struggle for survival the Nigerian banking industry seemed to have adopted the inevitability of investing in information technology. This became evident from the developments around the world on the tremendous role of information technology in the management of information and business prosperity, (Ehikhamenor, 2003).

Since 1999 Nigeria have shown more obvious efforts, through government supported workshops and conferences, to fashion an agenda for national information technology Infrastructural development. According to Byrd and Turner (2000) Information Technology Infrastructure(ITI) is defined as the shared information technology resources consisting of a technical, physical base of hardware, software, communication technologies, data, core applications, human component skills and expertise combined to create information technology services that are typically unique to an organization more so, these firms choose to solidify their information technology infrastructure for the purpose of fostering changes. However, some of the reasons for investing in Information Technology Infrastructure(ITI) include increased convenience, increase access to information, speed of transactions, and new levels of customer segmentation, (Bhatt and Grover, 2005). Information technology infrastructure in the banking sector can be divided into two areas, these are; electronic commerce and electronic banking (Akpan, 2003). Electronic banking was introduced and adopted in 1996 when the Central Bank of Nigeria gave approval to Allstates Trust Bank Limited to offer a financial product known as the ESCA Smart Card, an electronic purse.

Subsequently, Diamond Bank Limited, introduced a parallel product known as Diamond pay Card. However, the Smart Card scheme received a boost in February, 1998 when a consortium of 19 licensed banks floated a smart card company, known as Smart Card Nigeria Plc with the mandate to produce and manage cards issued by member banks of the consortium, (Agene, 2000).

According to Oluwatobani et al (2011) electronic banking can be described as the act of carrying out the business transaction of a bank using electronic devices. Examples of electronic devices that are used includes computer Systems, Global system for Mobile Communication (GSM) phones, Automated Teller Machine (ATM), Internet facilities, Optical Character Recognition (OCR), Smart Cards, funds transfer, electronic mail, Bankers Automated clearing Services (BACS), and point-of-sales (POS), etc. E-banking is about using the technology infrastructure of the digital age to create opportunities. E-Banking enables the dramatic lowering of transaction costs, and the creation of new types of banking opportunities that will address the barriers of time and distance.

According to Uppall (2011) E-commerce is a system, which includes transaction that centers on buying and selling of goods and services online to directly generate revenue. E-Commerce builds on the advantages of traditional commerce by adding the flexibility offered by electronic networks. E-Commerce provides consumers the ability to bank, invest, purchase, distribute, communicate, explore and research from virtually anywhere an internet connection can be obtained (Nwokah et al, 2006).

Again the term customer service delivery(CSD) is not new in the business environment, because every consumer exercises awareness as touching his needs and wants, also service providers being knowledgeable about this awareness ensures that customers receives quality. The key to customer service delivery lies in making the few minutes of a customer convenient, efficient and effective. For instance, a bank introduces welcome kits wherein, a customer comes into open an account with the bank walks out with a fully enabled account debit card, cheque book, net banking account, and phone banking account in a matter of minutes. However, this business not only lead to customer convenience, they also help the

banks save on cost and identify customer needs and tailoring products to match these needs. Furthermore, customer service delivery (CSD) practice helps enhance a firm's competitive positioning, enhance reliability, courtesy, and access to good services (Alan and Perry, 2002). Ivanovic (1997) defined customer service as a service given to a customer once he has made his decision to buy. However, it is important to state that a lot of study has been done on Information technology infrastructure, e.g., Mohamad and Kamaruzaman (2009) empirically showed that information technology infrastructure flexibility is influential in determining intranet effectiveness. Chen and Tsou (2007) empirically proved that information technology adoption has positive effects on service innovation practices, which increases the competitive advantage in the banking sector.

Chuang et al (2003) studied the impact of information technology infrastructure flexibility on strategic alignment and applications implementation in the financial sector. Also Turner (2000) studied information technology infrastructure capability's impact on firm financial performance. But no available study in literature on IT infrastructure and customer service delivery in the Nigeria financial sector. To fill this gap in the literature and advance the understanding of information technology infrastructure and customer service delivery, we adopted and modified the domains of information technology infrastructure as propounded by Byrd and Turner (2000) such as: compatibility, connectivity and our dependent variables was drawn from the postulation of Parasuraman et al (1985) and modified by the researcher such as: reliability and access. In other to carry out this study we choose the financial services sector precisely the commercial banks. The choice of the commercial banks was influenced by the desire of the researcher to investigate service firms in a highly competitive and dynamic IT driven environment.

## **THEORETICAL AND EMPIRICAL REVIEW OF RELATED LITERATURE ON ITI AND CSD**

Turban et al (2007) defined information technology infrastructure as the physical services, and the management that support all computing resources in an organization. They further stated that it supports all organizations ITI applications including Operations, documentation, integration, and maintenance. McKay and Brockway (1989) stated that it is the base foundation of ITI capability budgeted for and provided by the information system function and shared across multiple business units and functional areas. However, he further noted that ITI includes both the technical and managerial expertise to provide reliable service.

The definition of Information Technology Infrastructure encompasses a variety of components. Based on previous studies, Duncan (1995) stated that information technology infrastructure includes a group of shared, tangible information technology resources that provide foundation to enable present and future business prosperity. Broadbent and Weill (1997) noted that information technology infrastructure capabilities enable the various types of information technology application required to support current and future business objectives, also enable the competitive positioning of business ideas. According to Broadbent and Weill (1997) these resources include:

1. Computer hardware and software (e.g. operating systems);
2. Network and telecommunications technologies;
3. Key Data;
4. Core data — processing applications;

## 5. Shared Information Technology services.

Duncan (1995) also stated that Information Technology infrastructure include the alignment of information technology plans to business objectives, the information technology architecture, and the skills of information technology personnel Saaksjarvi (2000) described information technology infrastructure as the enabling foundation of shared information technology capabilities upon which the entire business depends. This foundation is standardized and shared by business functions within the organization, and typically used by different organizational applications.

According to Xia and King (2004), information technology infrastructure is a set of information technology resources and organizational capabilities that are shared across the organization and that provide the foundation on which information technology applications are developed and business processes are supported.

Byrd and Turner (2000) provided a thorough definition of information technology infrastructure, they define it as the shared information technology resources consisting of a technical physical base of hardware, software, communications technologies, data, and core applications, human component of skills, expertise, competencies, commitments, values, norms, and knowledge that combine to create information technology services that are typically unique to an organization.

This information technology services according to them provide a foundation for communications interchange across the entire organization and for the development and implementation of present and future business applications. As can be deduced from the definition above, the information technology infrastructure is composed by two components: a technical information technology infrastructure and a human information technology infrastructure. The technical aspect of information technology infrastructure consists of the applications, data and technology (Broadbent and Weill 1997; Chaung, Byrd, Lewis and Ford 2005). The human aspect of Information Technology Infrastructure consists of the knowledge and capabilities required to handle organizational Information Technology resources. They further observed that Information Technology Infrastructure capabilities provide the foundation for "Competitive positioning of business initiatives (Broadbent and Weill 1997). Saaksjarvi (2000) further suggested that a robust IT Infrastructure enable employees to be able to perform their respective jobs, both from having the available technology and the necessary technological skills.

Duncan (1995) further observed in one of her study that organization's component of IT Infrastructure will enable strategic service innovations in business processes. Acklesh (2008) studied information technology and business value in developing economies and the study revealed that information technology indeed contributes to business value. Turner (2000) Studied the impact of information technology capability on firm financial performance, his study findings revealed that modularity, Technical Skill Knowledge and support activity were negatively related to Return on Sales, while resource management functionality and activity efficiency were positively related to refund on sales. Oluwagbemi et al (2011) studied the impact of information technology in Nigeria banking industry and they found that information technology has significant impact on banks operational efficiency.

Moreso, Sunil et al (2004) in their study of the effect of information technology investment on customer satisfaction hypothesized that IT investment is positively related to perceived quality and perceived value, the study findings revealed that IT investment have a positive effect on perceived quality and perceived value for firms in the service sectors than in the manufacturing sector. Also Sunil et al (2004) studied information technology infrastructure capability and firm performance, the study revealed that ITI is positively related to customer and market focus, process management and performance management of firms performance respectively.

Marchand et al (2000) studied the link between information technology and firm performance and their study revealed that three set of factors keeps a firms performance, the quality of IT management practices, IT management processes should sense, gather, organize and disseminate information in other words IT management is positively related to a firms performance and continual existence. Sambamurthy et al (2003) in their study revealed that information technology infrastructure capabilities in firm impacts customer focus and market focus. This in other words means that IT infrastructure capabilities enable firms to position their IT asset so as to capture information about customers as well as disseminate information to customer in other to create satisfaction. Also Sambamurthy (2003) in another study argue that IT capabilities have a positive impact on the quality of organizational processes and the development of digital process and the development of digital process capabilities.

Gilaninia et al (2011) in their work, the impact of information technology application on supply chain performance, found that information technology impacts supply chain strategy and information technology has more relationship with responsiveness of supply chain, meaning IT impacts supply chain performance in an organization. Melville et al (2004) in there study suggested that IT and the complementary resources of the firm affected the effectiveness of business processes with consequently improved organizational performance. Karimi et al (2010) in their study revealed that good IT planning and integration are more effective at improving customer service.

Ting et al (2010) in their study impact of information technology and firms performance, argued that IT impact firm's financial efficiency and capability performance, respectively. Ray et al (2005) also found that there were no direct effects of three different IT resources (technical skills, manager technology knowledge, and IT spending) on the performance of customer service process.

### **Compatibility**

Compatibility is the ability to share any type of information across any technology component throughout the organization (Duncan , 1995). According to Mohammad and Kamaruzaman (2009), Information Technology compatibility help span organization boundaries, employee empowerment, make information and knowledge readily available in the organization. Gibson (1993) noted that compatibility addresses the need for uniformity in technology across the organization.

Kamal (2006) in his study revealed a positive correlation between compatibility and reliability of service. Akbulut (2002) in his study revealed that compatibility is positively correlated with access to service, in that compatibility creates ease of use. Thus the following hypotheses were tested;

**Hypothesis 1:** There is no significant relationship between compatibility of ITI and reliability of Customer Service Delivery in the commercial banks.

**Hypothesis 2:** There is no significant relationship between compatibility of ITI and access of Customer Service Delivery in commercial banks.

### **Connectivity**

Duncan (1995) observed that connectivity is the ability of any technology components to communicate with any of the other components inside and outside of the organizational environment. According to Chaung et al (2003) Information Technology connectivity enable seamless and transparent organizations that are independent of time and space. Keen (1991) described connectivity as the physical presence of information technology that binds the organization together. He further suggested the term “reach”, to address the issue of connectivity. He defined reach as the location that can be connected via the IT infrastructure. Keen (1991) also noted that reach is required to achieve an organization’s desired level of data transparency. Byrd and Turner (2000) noted that connectivity refers to the ability of any technology to attach to any of the other technology component. It also means that every person, every functional area, and every application in the organizations are linked to one another. Mohammad and Kamaruzaman (2000) hypothesized and found that connectivity is correlated with reliability. While Chaung et al (2005) hypothesized and found that connectivity is significantly correlated with access. Thus the following hypotheses were tested;

**Hypothesis 1:** There is no significant relationship between connectivity of ITI and reliability of Customer Service Delivery in commercial banks.

**Hypothesis 2:** There is no significant relationship between connectivity of ITI and access of Customer Service Delivery in commercial bank.

### **Customer Service Delivery**

In service provision the customer plays an important role, many services require customers to participate in creating the service product. In using an ATM card to withdraw money, in cooperating with hair dresser, hotels, and schools, the role of customers is central in any good service delivery. When people feel a need they are motivated to take an action to fulfill it. However, Lewis and Boom (1983) noted that service delivery means conforming to customers’ expectations on a consistent basis. In other words, firms which is on and off in its service delivery cannot be said to be offering quality and deliverable service to meet customer expectations. As earlier stated, we adopted the works of Parasuraman et al (1985).

### **Reliability**

According to Aham and Nwokah (2008) reliability involves consistency of performance and dependability. This means that the firm performs the service right the first time. It also means that the firm honors its promises. Specifically, it involves:

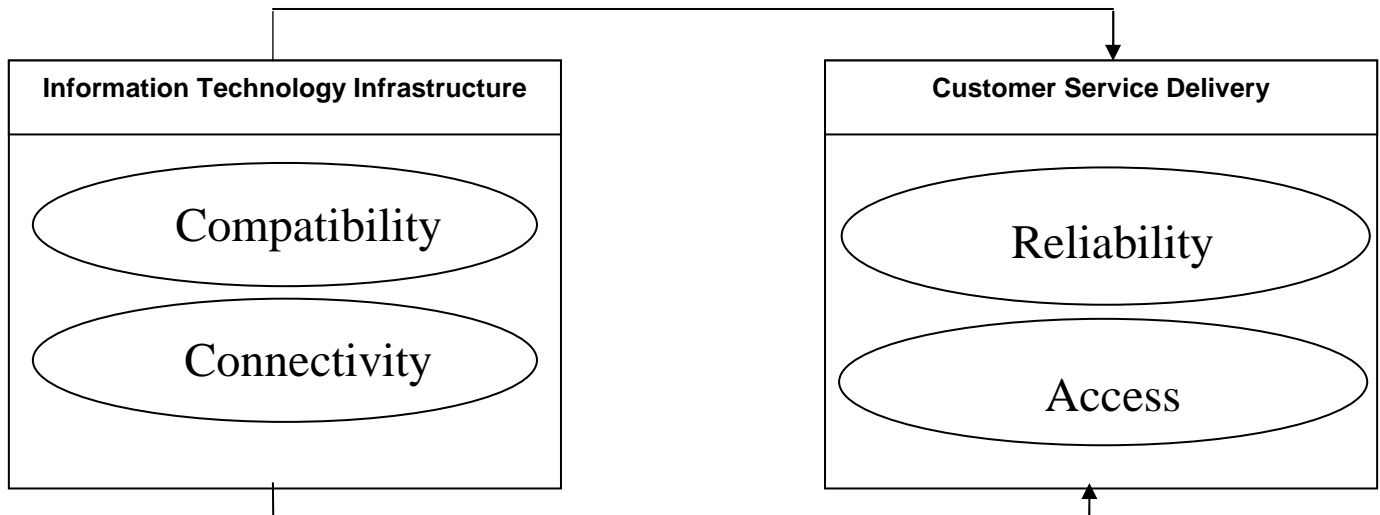
- Accuracy in billing
- Keeping records correctly, and
- Performing the service at the designated time.

According to Joanne et al (2006) in a service context, reliability can be defined as the firm’s ability to provide the service correctly the first time.

**Access**

This involves approachability and ease of contact. It also means the service is easily accessible by telephone (lines are not busy and they don't put you on hold); waiting time to receive service (e.g., at a bank) is not extensive, convenient hours of operation; convenient location of service facility (Aham & Nwokah, 2008)

**Figure 2.0: Operational Framework on Information Technology Infrastructure and Customer Service Delivery.**



**Source: Researcher's Concept, 2013.**

**Research Design**

Here the research design the researcher adopted is the quasi-experimental design. The quasi experimental designs are used in administrative sciences research, because of the complex relationships that exist between variables. Such relationships are not subject to manipulation.(Baridam,2008).We adopted the survey method using questionnaire to elicit data from a sample of elements from the population of interest.

**Population of the Study**

The population of this study is the 20 commercial banks in Nigeria, while the accessible population will be the commercial banks in the South- South.

**Sampling Technique AND Sample Size Determination**

The sampling technique the researcher used is cluster sampling, simple random sampling and judgment sampling. Here, the researcher grouped the 20 commercial banks into 4clusters which is 5banks in each cluster, based on their asset strength. Then randomly selected two banks from each of the 4clusters which is eight banks and a total of 40customers from the 8banks as the sample size.

**Data collection Methods**

The data collection method was questionnaire instrument, however Section A asked questions relating to the respondent demographics, while Section B contained questions

generally asked to provide information about “IT Infrastructure and its impact on customer service delivery”

### Validity of the Instrument

Here, content validity of the instrument, namely, Information Technology Infrastructure and customer service delivery (ITI,CSD) was determined,. Copies of the instrument were given to some professionals and experts in this field to make their own inputs. They reviewed the content of the items, there clarity constrains, coverage and relevance. They also reviewed the appropriateness of the language structure and expression to know if really the instrument is competent to measure the variables it was designed to measure. Base on the reviews and suggestions, corrections were made.

### Reliability of the Instrument

Here the researcher applied the test-retest reliability to ascertain the understanding and clarity of the statement in the questionnaire and this instrument was distributed and after two days another instrument was administered on same respondents, then each person’s performance obtained on the first administration test was related to his/her score on the second administration to provide, a reliability coefficient. We then applied the Cronbach Alpha to get the reliability coefficient and got a reliability coefficient of 0.91 which means that the instrument was reliable.

### Operational Measures of the Variables

We gathered information about the independent variables with the use of questionnaire and it was operationalised using 4 points Likert scale ranging from “1” meaning “not at all” to “4” meaning “to a great extent”.

### Date Analysis Technique

In this study, the data in section A respondent demographics was presented in tabular form. In analyzing and testing the four (4) hypotheses formulated for this study, the researcher adopted the Spearman’s rank order correlation coefficient designated as Rho. It ranks paired observations, thus requiring at least ordinal data. Rho, symbolized by  $r_s$  or  $\rho$  .measures the degree of relationship between two sets of ranked observation. It has the following formula.

$$rs = \frac{1 - 6 \sum d^2}{N^3 - N} \text{ or } rs = \frac{1 - 6 \sum d^2}{N(N^2 - 1)}$$

Where:  $\sum d^2$  = sum of the squared difference in the ranking of the subject on the two variables.

N= number of subjects being ranked.

## PRESENTATION AND ANALYSIS OF DATA

**Table 4.1.1 Gender of Respondents.**

S/NO	Sex	Frequency	Percentage
1.	Male	10	25
2.	Female	30	75
	<b>Total</b>	<b>40</b>	<b>100</b>

**Source:** Research Survey, 2013.



The data in table 4.1 shows that 10 respondents representing 25% are male while 30 respondents presenting 75% are female.

**Table 4.1.2. Age bracket of Respondents**

S/NO	Age of Respondents	Frequency	Percentage
1.	Under. 30 years	20	50
2.	30-40 years	10	25
3.	41 and above	10	25
	<b>Total</b>	<b>40</b>	<b>100</b>

**Source:** Research Survey, 2013.

From the table above 20 respondents representing 50% are under 30 years, 10 respondents representing 25% are between 30-40 years; while 10 respondents representing 25% are between 41 years and above.

**Table: 4.1.3: Educational Qualification**

S/NO	Educational Qualification	Frequency	Percentage
1.	SSCE/Diploma	10	25
2.	B. Sc	20	50
3.	Masters degree	6	15
4.	PhD	4	10
	<b>Total</b>	<b>40</b>	<b>100</b>

**Source:** Research Survey, 2013.

From the table above 10 respondents representing 25% holds SSCE/Diploma, 20 respondents representing 50% holds B.Sc, 6 respondents representing 15% holds masters degree, while 4 respondents representing 10% holds P.hD.

**Table: 4.1.4: Familiarity of information technology Infrastructure and customer service delivery.**

S/NO	Degree of Response	Frequency	Percentage
1.	Great extent	30	75
2.	Moderate extent	10	25
3.	Considerable extent	-	-
4.	Not at all	-	-
	<b>Total</b>	<b>40</b>	<b>100</b>

**Source:** Research survey, 2013.

30 respondents representing 75% agreed that they are familiar with the term ITI and customer service delivery to a great extent, 10 respondents representing 25% agreed to a moderate extent while the other respondents indicated no response on considerable extent and not at all.

**Table 4.1.5: Length of service in the bank**

S/NO	length of service	Frequency	Percentage
1.	1-5 years	20	50
2.	5-10 years	10	25
3.	10-15 years	10	25
4.	15 years and above	Nil	Nil
	<b>Total</b>	40	100

**Source:** Research survey, 2013.

20 respondents representing 50% have worked between 1-5 years, 10 respondents representing 25% between 5-10 years and 10 respondents representing 25% between 10-15 years in the commercial banks.

### ANALYSIS AND FINDINGS ON RESEARCH HYPOTHESES

#### COMPUTING SPEARMAN'S RANK CORRELATION COEFFICIENT BETWEEN COMPATIBILITY OF INFORMATION TECHNOLOGY INFRASTRUCTURE (x) AND RELIABILITY OF CUSTOMER SERVICE DELIVERY IN BANKS (y)

The stated hypotheses are as follows:

$H_{01}: \rho_s = 0$ : There is no significant correlation between Compatibility of Information Technology Infrastructure and Reliability of Customer Service Delivery in commercial banks;

#### Nonparametric Correlations

[DataSet1] D:\Data Files\Ana-Andy-SPMR=14Dec11A.sav

##### Correlations

			COMPATI BILITY	RELIABILITY
Spearman's rho	COMPATIBILITY	Correlation Coefficient	1.000	.903**
		Sig. (2-tailed)	.	.000
		N	40	40
	RELIABILITY	Correlation Coefficient	.903**	1.000
		Sig. (2-tailed)	.000	.
		N	40	40

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Source: SPSS ver. 15 Output window**

From the SPSS output window, the correlation coefficient of the variables Rank-x and Rank-y is 0.903

### INTERPRETATION

This positive large value of  $r_s$  ( $= 0.903$ ) says that there is a strong positive rank correlation between Compatibility (x) and Reliability (y) in the sample.

Since the p-value ( $= 0.000$ ) is less than the level of significance  $\alpha$  ( $= 0.05$ ), we therefore, reject the null hypothesis and conclude that:

HA<sub>1</sub>:  $\rho_s \neq 0$ : There is significant correlation between Compatibility of Information Technology Infrastructure and Reliability of Customer Service Delivery in commercial banks;

**COMPUTING SPEARMAN'S RANK CORRELATION COEFFICIENT BETWEEN COMPATIBILITY OF INFORMATION TECHNOLOGY INFRASTRUCTURE (x) AND ACCESS TO CUSTOMER SERVICE DELIVERY IN BANKS (y)**

The stated hypotheses are as follows:

H<sub>02</sub>:  $\rho_s = 0$ : There is no significant correlation between Compatibility of Information Technology Infrastructure and Access to Customer Service Delivery in commercial banks;

**Nonparametric Correlations**

[DataSet2] D:\Data Files\Ana-Andy-SPMR=14Dec11A.sav

**Correlations**

			COMPATI BILITY	ACCESS
Spearman's rho	COMPATIBILITY	Correlation Coefficient	1.000	.710**
		Sig. (2-tailed)	.	.000
		N	40	40
	ACCESS	Correlation Coefficient	.710**	1.000
		Sig. (2-tailed)	.000	.
		N	40	40

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Source: SPSS ver. 15 Output window**

From the SPSS output window, the correlation coefficient of the variables Rank-x and Rank-y is 0.710

**INTERPRETATION**

This positive large value of  $r_s$  (= 0.710) says that there is a strong positive rank correlation between Compatibility (x) and Access (y) in the sample.

Since the p-value (= 0.000) is less than the level of significance  $\alpha$  (= 0.05), we therefore, reject the null hypothesis and conclude that:

HA<sub>2</sub>:  $\rho_s \neq 0$ : There is significant correlation between Compatibility of Information Technology Infrastructure and Access to Customer Service Delivery in commercial bank

**COMPUTING SPEARMAN'S RANK CORRELATION COEFFICIENT BETWEEN CONNECTIVITY OF INFORMATION TECHNOLOGY INFRASTRUCTURE (x) AND RELIABILITY OF CUSTOMER SERVICE DELIVERY IN BANKS (y)**

The stated hypotheses are as follows:

$H_{03}: \rho_s = 0$ : There is no significant correlation between Connectivity of Information Technology Infrastructure and Reliability of Customer Service Delivery in commercial banks;

### Nonparametric Correlations

Correlations			CONNEC TIVITY	RELIABILITY
Spearman's rho	CONNECTIVITY	Correlation Coefficient	1.000	.803**
		Sig. (2-tailed)	.	.000
		N	40	40
	RELIABILITY	Correlation Coefficient	.803**	1.000
		Sig. (2-tailed)	.000	.
		N	40	40

\*\* . Correlation is significant at the 0.01 level (2-tailed).

[DataSet3] D:\Data Files\Ana-Andy-SPMR=14Dec11A.sav

### Source: SPSS ver. 15 Output window

From the SPSS output window, the correlation coefficient of the variables Rank-x and Rank-y is 0.803

### INTERPRETATION

This positive large value of  $r_s (= 0.803)$  says that there is a strong positive rank correlation between Connectivity (x) and Reliability (y) in the sample.

Since the p-value ( = 0.000) is less than the level of significance  $\alpha (= 0.05)$ , we therefore, reject the null hypothesis and conclude that:

$H_{A3}: \rho_s \neq 0$ : There is significant correlation between Connectivity of Information Technology Infrastructure and Reliability of Customer Service Delivery in commercial banks;

### COMPUTING SPEARMAN'S RANK CORRELATION COEFFICIENT BETWEEN CONNECTIVITY OF INFORMATION TECHNOLOGY INFRASTRUCTURE (x) AND ACCESS OF CUSTOMER SERVICE DELIVERY IN BANKS (y)

The stated hypotheses are as follows:

$H_{04}: \rho_s = 0$ : There is no significant correlation between Connectivity of Information Technology Infrastructure and Access to Customer Service Delivery in commercial banks;

### Nonparametric Correlations

[DataSet4] D:\Data Files\Ana-Andy-SPMR=14Dec11A.sav

**Correlations**

			CONNEC TIVITY	ACCESS
Spearman's rho	CONNECTIVITY	Correlation Coefficient	1.000	.662**
		Sig. (2-tailed)	.	.000
		N	40	40
	ACCESS	Correlation Coefficient	.662**	1.000
		Sig. (2-tailed)	.000	.
		N	40	40

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Source: SPSS ver. 15 Output window**

From the SPSS output window, the correlation coefficient of the variables Rank-x and Rank-y is 0.662

**INTERPRETATION**

This positive large value of  $r_s$  (= 0.662) says that there is a strong positive rank correlation between Connectivity (x) and Access (y) in the sample.

Since the p-value (= 0.000) is less than the level of significance  $\alpha$  (= 0.05), we therefore, reject the null hypothesis and conclude that:

$H_{A4}$ :  $\rho_s \neq 0$ : There is significant correlation between Connectivity of Information Technology Infrastructure and Access to Customer Service Delivery in commercial banks;

**DISCUSSION OF FINDINGS**

**H<sub>01</sub>:** Stated that there is no significant relationship between compatibility and reliability and the analysis revealed that  $r_s$  (=0.903) and the P-value (=0.001) which is less than the level of significance  $\alpha$  (=0.005) we therefore rejected  $H_{01}$  and concluded that there is a strong correlation between compatibility and reliability, this finding is in line with Kamal (2006). **H<sub>02</sub>:** Stated that there is no significant relationship between compatibility and access and the analysis have revealed that  $r_s$ (=0.710) and P-value (=0.000) which is less than the level of significance of (=0.055) we therefore rejected  $H_{02}$  and accept  $H_{02}$  and concluded that there is a strong and significant relationship between compatibility and access. This finding is in line with Akbulut (2002).

**H<sub>03</sub>:** Stated that there is no significant relationship between connectivity and reliability and the analysis showed that  $r_s$  (=0.803) and P-Value (0.000) is less than the level of significance  $\alpha$  (=0.05), we therefore rejected  $H_{03}$  and accepted  $H_{A3}$  and concluded that there is a strong and significant relationship between connectivity and reliability this finding is consistent with Mohammed and Kamaruzaman (2006).

**H<sub>04</sub>:** Stated that there is no significant relationship between connectivity and access, the analysis revealed  $r_s$  (=0.662) and P-value (=0.000) which is less than the level of significance  $\alpha$  (=0.05), we therefore rejected  $H_{04}$  meaning there is strong and positive correlation between connectivity and access, this is in consonance with Chaung (2005).

## CONCLUSION

This study has been able to reveal the relationship between ITI and CSD and have contributed to the existing body of knowledge. Customers, business owners and operators now through the findings of this piece of work will understand the degree of impact of ITI on customer service in the banks. ITI is fundamental for all business organization, because it deals with the integration of technology components to support business needs and create service value for their teaming customers and attract competitive edge. The results of our study revealed that the components of ITI has strong and positive impact on the components of customer service delivery, in other words, compatibility and connectivity has strong impact on reliability as well as access. That is, ITI component enables an organization to deliver reliable service and enable customers to have access to quality service. More so, to quickly and easily modify existing IT applications as to give prompt solutions to customer complains. However, the study has contributed to knowledge by filling the gap identified in this work. Again the study has created a framework for prospective researchers to study other elements of ITI and customer service delivery.

## RECOMMENDATIONS

The Nigerian banks should improve upon their ITI flexibility, by regularly training and retraining their IT personnel with the aim of being responsive to customer's complaints as they arise from time to time. The Nigerian banks should intensify their enlightenment messages to their customer's on the preservation of their banking details. The banks should overhaul their ITI facilities from time to time so as to meet current trends of information technology as to deliver quality and accessible service to customers. In other words, their should be timely innovations and improvements of ITI facilities

## REFERENCES

- Acklesh, P. (2008) – Information technology and business value in developing Economies: A study of Intangible benefits of Information technology investments in Fiji. *Electronic Journal of Information Systems in developing countries*. 34 (2), 1-11.
- Agene, C.E. (2000) -Electronic banking in Nigeria: Concepts, Policy Issues- and supervisory Framework. Bullion Publication of the Central Bank of Nigeria. 24(4), 57-63.
- Aham, A. and Nwokah, G.N (2008), *Contemporary Books on Services Marketing*, Owerri: Avan Global Publications.
- Akbulut, A. Y. (2002)-An Investigation of the factors that influences electronic information sharing between state and local agencies. *Proceedings of 8th America Conference on Information Systems*, Dallas, Texas, USA, 2454-2460.
- Akinyomi, O.J. (2010) - The impact of information technology on the operations of Nigerian banks. *Journal of research in national development*. 8(2), 1-9.
- Akpan, P.I. (2003) -Basic-needs to globalization: Are ICTs the missing link? *Journal of Information Technology for Development*. 10(2), 261-274.
- Alam, I. and Perry, C.(2002) - A Customer-oriented new service development process. *Journal of Marketing Research*. 16(6), 515-534.
- Baridam, D. M. (2008). *Research Methods in Administrative Sciences*, 3<sup>rd</sup> Edition. *Sherbrooke Associates*.
- Bhatt, G. and Grover, V. (2005) -Types of Information technology capabilities and their role in competitive advantage: An empirical study. *Journal of Management Information Systems*. 22(2), 253-277.

- Broadbent, M. and Weil P. (1997) -Management by Maxim: How business and IT managers can create IT Infrastructures *Sloan Management Review*. 38(3), 77-92.
- Byrd, T. A. and Turner, E.D. (2000) - An exploratory analysis of the Information Technology Infrastructure Flexibility Construct. *Journal of Management Information systems*. 17(1), 167-208.
- Byrd, T. A. and Turner, E. D. (2001) - An Exploratory Analysis of the Value of the Skills of IT personnel, their relationship to IS infrastructure and competitive advantage *Decision Science*. 32(1), 21-24
- Chaung, S. H., Byrd, T. A., Lewis, B. R., and Ford, F.N. (2005) - An Empirical studies of the relationship between IT Infrastructure Flexibility, Mass customization and business performance. *The DATA BASE FOR Advancing information Systems*. 36(3),26-44
- Chaung, Sock. H , Rainer, R.K. and Levis, Bruce, R. (2003) - The Impact of Information Technology Infrastructure Flexibility on Strategic Alignment and Application Implementations. *Communications of the Association for Information System*. 11(11), 25-30
- Chen, J.S. and Tsou, H.T. (2007) - Information Technology Adoption for Service Innovation Practices and Competitive Advantage. *Journal of Information Research*. 12(3), 1-26.
- Duncan, N. B. (1995) - Capturing Flexibility of Information Technology Infrastructure: A study of Resource Characteristics and their measure. *Journal of Management Information Systems* 12, (2), 37-57.
- Ehikhamenor, F.A. (2003)- Information Technology in Nigerian banks: The limits of expectations. *Journal of Information Technology for development*. 10 (1), 13-24.
- Ezeuduji, F.U. (2000) - Historical Perspectives of Banking Practices Worldwide. *Bullion*, Publication of the Central Bank of Nigeria. 24(4), 8-12.
- Gershenson, J. K. and Prasad, G. J. (1997) - Product Modularity and its effect on service and Maintenance. *Proceeding of the 1997 Maintenance and Reliability Conference*, 1-13, May 1997, Knoxville, Tennessee, U.S.A.
- Gibson, R. (1993) - Global Information Technology Architecture. *Journal of global Information Management*. 4(2), 28-38.
- Gilaninia, S. et al (2011)- The Impact of Information Technology application on supply chain performance. *Interdisciplinary Journal of Contemporary research in Business*. 3(8), 489-496.
- Ivanovic, M.B.A., (1997). *Dictionary of marketing*, New Delhi: *Peter Collins Publishing*.
- Kamal, M. M. (2006) - IT Innovation Adoption in the government Sector: Identifying the critical success factors. *Journal of Enterprise Information Management*, 19(2), 192-222.
- Keen, P.G.W. (1991). *Shaping the future: Business Design through Information technology*. Boston: Harvard Business School Press.
- Marchand, D. A., Kettinger, W.J., Rolins, J.D. (2000) – Information Orientation: People, technology and the bottom line. *Sloan Management Review*. 41(4), 69-80.
- Mckay, D. T. and D.W. Brockway. (1986) - Building Information Technology Infrastructure for the 1990s Stage by stage Nolan Norton and company. 9(3), 1-11.
- Mohamad, N. M. and Kamaruzaman, J. (2009) - The Effect of Information Technology Infrastructure Flexibility on Intranet Effectiveness. *Journal of Computer and Information Science*. 2(2), 57-65.
- Nwokah, N.G., Hamilton, D.I., Ugorji, E.I. (2006). *E-Commerce and internet Marketing*. Man – Philip Publication, Port Harcourt.

- Oluwagbemi, O., Abah, J., Achimuga, P. (2011)- The Impact of Information Technology in Nigeria banking industry. *Journal of Computer Science and Engineering*. 7(2), 63-67.
- Parasuraman, A. Valarie, A. Zeithami and Leonard L. Berry (1985) - A conceptual model of service quality and its implications for future Research. *Journal of Marketing*. 25(5), 64-78.
- Saaksjarvi, M. (2000) - The Roles of Corporate IT Infrastructure and their Impacts on IS Effectiveness. *Proceedings of the 8th European Conference on Information Systems*, Vol. 1, 13rd June 2000, Vienna, Austria.
- Sambamurthy, V., Bharadway, A.S., Grover, V. (2003)- Shaping Agility through digital options: Reconceptualizing the role of IT in contemporary firms. *Management Information System quarterly*. 27(2), 237-263
- Sunil, M., Narayan, R., Krishnan, M.S., Sambamurthy. V. (2005)- Information Technology Infrastructure Capability and firm performance: An empirical Analysis. <http://ball.handle.net/2027.42/39170.1-31>
- Sunil, M., Krishnan, M.S., Fornel, C. (2005) – Effect of Information technology Investments on Customer Satisfaction: An Empirical analysis. *University of Michigan business School Working paper 02-012*. <http://hdl.handle.net/2027-42/39170.1-35>
- Ting-Peng, L., and Jun-Jer, Y, and Chih-chang, L (2010)- A resource-based Perspective on IT and firm performance. *Journal of Industrial Management and date Systems*. 110(8), 1138-1158.
- Turner, E.E. (2000)- Information Technology Infrastructure Capability's impact on firm financial performance: An exploration study. 1-10, available on line at <http://www.allbusiness.com/technology/9314471.html#ixzzifmnmQD68>
- Ulrich, K. and K. Tung (1991), "Fundamentals of Product Modularity," *Proceedings of the 1991 ASME Design Technical Conference — Conference on design manufacture/integration, Miami, Florida*.
- Uppal, R. K. (2011) -E-Delivery Channels in Banks-A fresh outlook. *International Refereed Research Journal*. 2(1),180-190
- Xia, W. and King, W. R. (2004). Antecedents of organizational information technology infrastructure capabilities. Retrieved January 3rd, 2011, from [www.misrc.umn.edu/workshops/2004/fall/Pdf](http://www.misrc.umn.edu/workshops/2004/fall/Pdf)

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